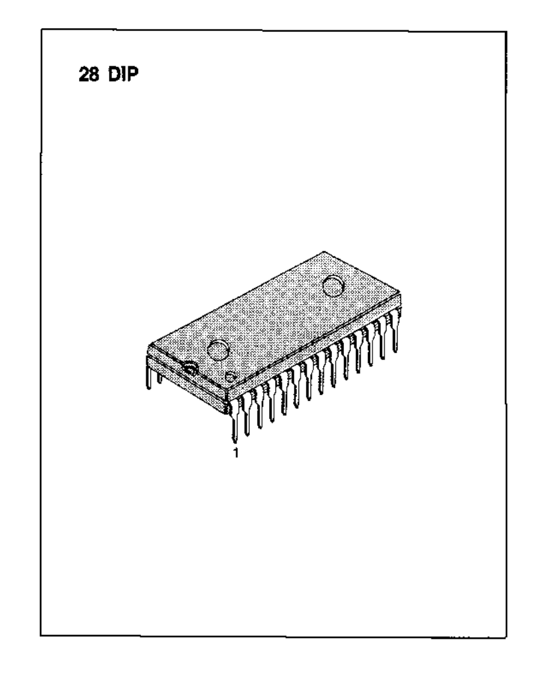
TV VIF & SIF & DEFLECTION SYSTEM (IC FOR TV LARGE INTEGRATION)

The KA2915 is a monolithic integrated circuit containing all stages for the VIF, SIF and deflection functions of television receivers.



FUNCTIONS

- IF Amp.
- Video Amp.
- IF AGC
- Tuner AFT
- Sound DET. (FM DET.)
- Vertical trig.
- Vertical drive
- Horizontal drive
- Video DET. (AM DET.)
- Noise canceller
- Forward RF AGC
- SIF Amp.
- Sync separation
- Vertical oscillation
- Horizontal oscillation
- Horizontal AFC

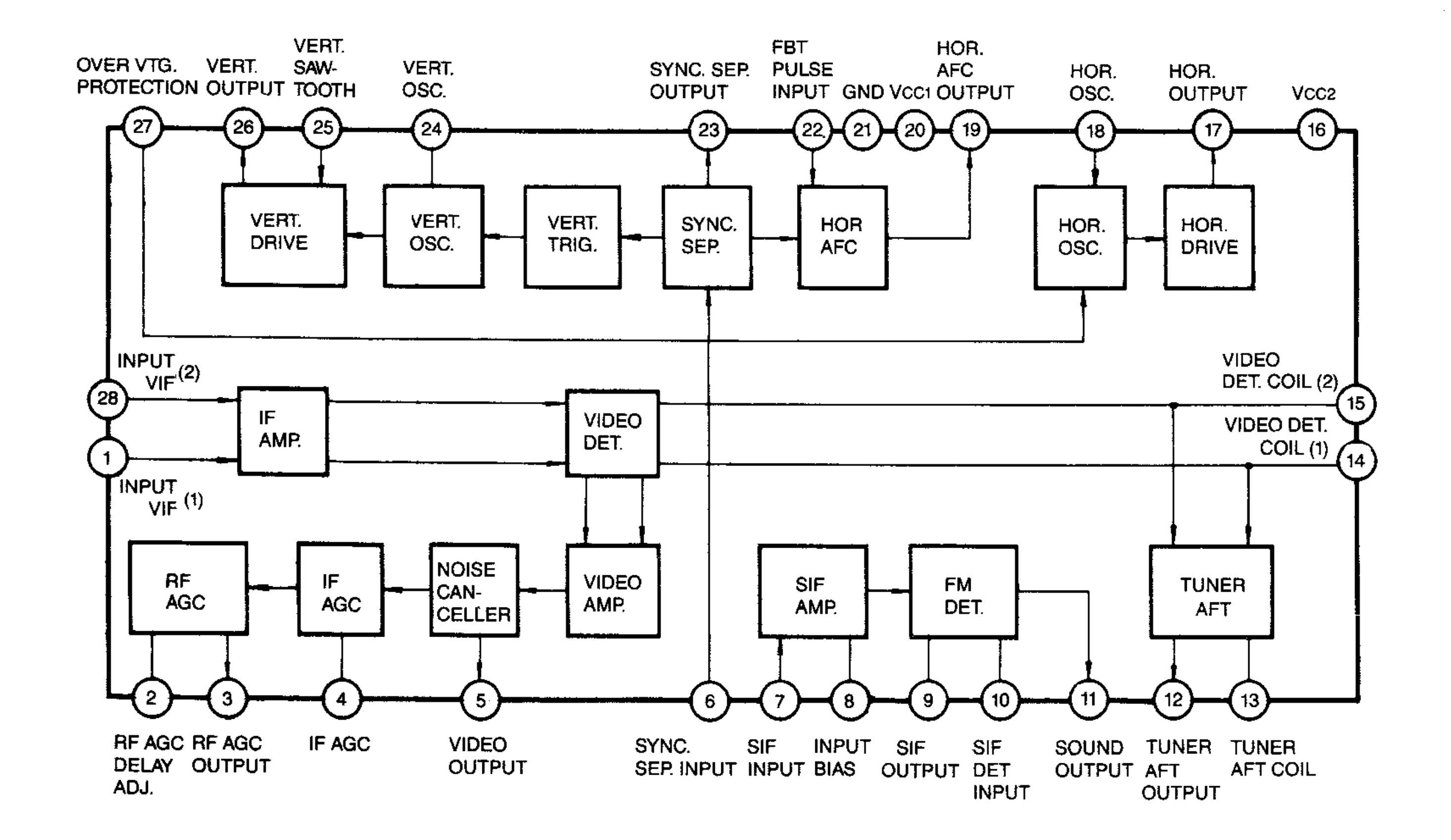
FEATURES

- **High integration technology makes possible the integration of video IF circuit a tuner AFC circuit a sound IF circuit a and deflection-jungle circuit a on a single chip.**
- **Supply voltage range: 8 ~ 12V (Typ. 10V).**

ORDERING INFORMATION

Device	Package	Operating Temperature
KA2915	28 DIP	−20 ~ +70°C

BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS (T_a=25°C)

Characteristic	Symbol	Value		Unit
Supply Voltage	V_{CC} (V_{20-21})	12		V
Supply Current	I_{20}	85		mA
	I_{16}	15		mA
Circuit Voltage	$V_{2, 3, 4, 24-21}$	V_{20-21}	0	V
	V_{8-21}	5.5	0	V
	V_{13-21}	4.2	0	V
	V_{17-21}	V_{16-21}	0	V
Circuit Current	$I_{5, 6, 11, 23, 26}$	+0.3	−10	mA (peak)
	I_{19}	+0.6	−0.6	mA (peak)
	I_{25}	+10	0	mA (peak)
	I_{17}	+10	−4	mA (peak)
Power Dissipation (T_a=70°C)	P_D	1100		mW
Operating Temperature	T_{OPR}	−20 ~ +70		°C
Storage Temperature	T_{STG}	−55 ~ +150		°C

ELECTRICAL CHARACTERISTICS (V_{CC1} = 10V, V_{CC} = 9.5V, T_a = 25°C)

Video Section

Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Video Det. Output	V_O	m=87.5%	2.0	2.3	2.6	V_{p-p}
Input Sensitivity	S_{VI}	V_O=−3dB	–	50	55	dBμ
Maximum Input	V_{MAX}	V_O > +0dB	105	110	—	dB
SN Rating	S/N	V_I = 80dBμ	51	56	—	dB
Differential Gain	DG	m=87.5%	—	4	8	%
Differential Phase	DP	m=87.5%	—	3	6	deg
Video Freq. Characteristic	$G_{V(F)}$	V_O=−3dB	4.5	6.0	8.0	MHz
Sync. Peak Voltage	V_P		1.9	2.3	2.7	V
Noise Inverter Output Level	V_{NT}		1.0	1.4	1.8	V
Noise Inverter Capture Level	V_{NI}		3.0	4.0	5.0	V
Sound IF Output	V_{SIF}	P/S=20dB	100	104	107	dBμ
Input Resistor	R_{INI}	f=45.75MHz	0.8	1.0	1.2	Kohm
Input Capacitcr	C_{ZNI}	f=45.75MHz	3.0	3.4	3.8	pF
Output Resistor	R_O5	f=500kHz	30	50	150	ohm
RF AGC Gain	G_{RF} AGC	f=10kHz, V_4=5mV	36	42	48	dB
RF AGC Max. Voltage	$V_{3(MAX)}$		8.2	8.8	9.4	V
RF AGC Min. Voltage	$V_{3(MIN)}$		3.6	4.2	4.8	V
AFT Center Voltage	V_2		4.0	5.4	6.0	V

Video Section (Continued)

Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
AFT SW Operating Voltage	V_{ART} SW	R_S=10KΩ	0.5	2.6	3.0	V
AFT Maximum Output Voltage	V_{12} (Max.)		8.5	9.6	10.0	V
AFT Minimum Output Voltage	V_2 (Min.)		0	0.7	1.2	V
Selection Sensitivity	μ	R_L=68KΩ/82KΩ	30	50	90	mV/kHz

Sound Section

Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Sound Det. Output	V_O	f_O=4.5MHz, f_m=400Hz Δf=±25kHz, V_i=100mVrms	200	300	440	mVrms
Input Limit Voltage	$V_{I(LIM)}$	f=4.5MHz, f_m=400Hz Δf=±25kHz	—	280	450	μVrms
Total Harmonic Distortion	THD	f_O=4.5MHz, f_m=400Hz Δf=±25kHz, V_i=100mVrms		0.6	1.0	%
AM Rejection Ratio	AMR		43	55	—	dB
Input Impedance	R_{17}	f=4.5MHz	6	20	100	KΩ
	C_{17}		1.3	4.3	7.3	pF
Detector Input Impedance	R_{D9}	f=4.5MHz	2.0	3.0	4.0	KΩ
	C_{D9}		2.1	5.1	8.1	pF
	R_{D10}		50	200	—	KΩ
	C_{D10}		2.9	3.4	3.9	pF

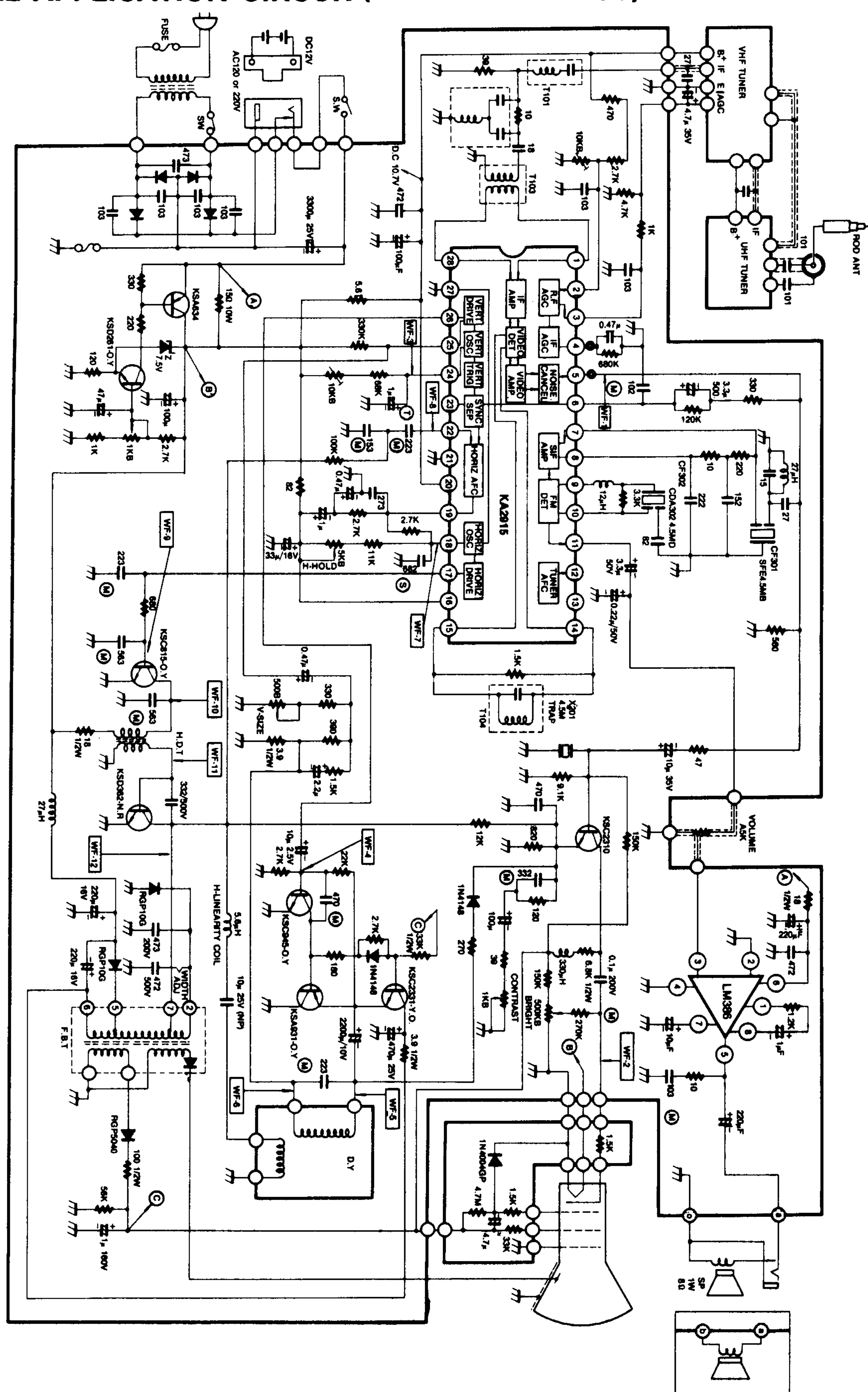
Deflection Section

Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Sync Sep. Hori. Pulse Width (1)	t_{SYNC1}	Video Input 2.5V_{P-P}, APL=50%, V_{CC1}=10V	4.8	5.1	5.4	μs
Sync Sep. Hori. Pulse Width (2)	t_{SYNC2}	Video Input 1.0V_{P-P}, APL=50% V_{CC1}=10V	4.9	5.2	5.5	μs
Hori. AFC Hori. Pulse Width (1)	t_{SYNC3}	Video Input 2.5V_{P-P}, APL=50% V_{CC}1=10V	4.8	5.1	5.4	μs
Hori. AFC Hori. Pulse Width (2)	t_{SYNC4}	Video Input 1.0V_{P-P}, APL=50% V_{CC1}=10V	4.9	5.2	5.5	μs
Vert Osc, Start Supply Voltage	$V_{FVO.S}$	f_{VO}=50~70Hz Output=0.7V_{P-P}	—	—	6	V
Vert. Free Running Frequency	f_{VO}	$R_{OSC(V)}$=31.5KΩ	57	60	63	Hz

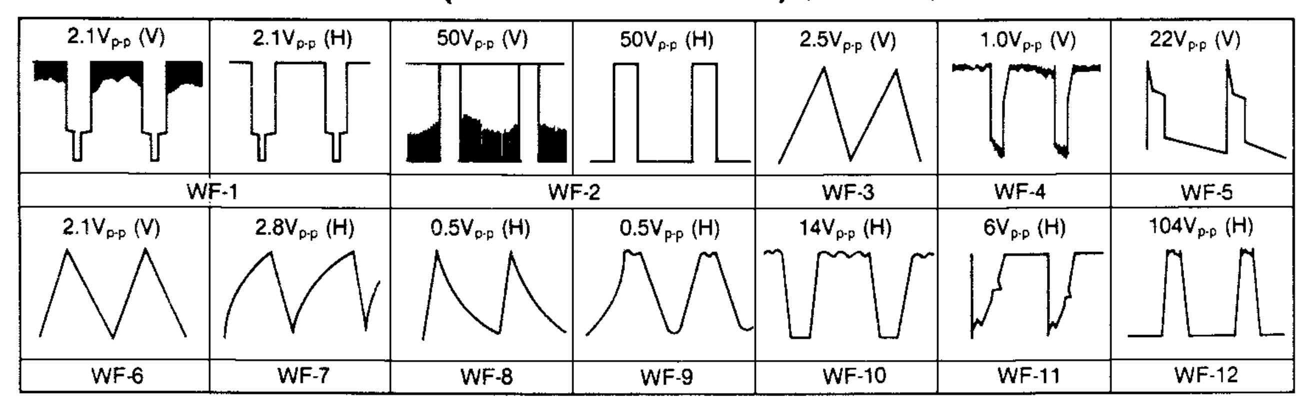
Deflection Section (Continued)

Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Vert. OSC. Pulse Width	t_{VO}	$R_{OSC(V)}$=31.5Kohm	470	650	830	μs
Vert. full in Range	$f_{V(PULL)}$	V_{CC1}=12V, 8V $\Delta f_{VO}/V_{CC}=f_{VO}$ (12V)-f_{VO} (8V)	0	1.0	1.3	Hz
Vert. Full in Range	f_{PV}	Composite Signal Input 2$V_{P\text{-}P}$	—	44	48	Hz
Hori. OSC. Start Supply Voltage	$V_{FHO.S}$	f_{HO}=10 ~ 20kHz Output=1$V_{P\text{-}P}$ Pin 16 Voltage	—	—	5	V
Hori. OSC. Freq.	f_{HO}	$R_{OSC(H)}$ = 21KΩ	15.0	15.75	16.25	kHz
Hori. OSC. Pulse Width	t_{HO}	$R_{OSC(H)}$=21Ω	23	26	29	μs
Hori. OSC. Freq. Voltage Dependent	$\Delta f_{HO}/V_{CC}$	V_{CC2}=10V, 8V $\Delta f_{HO}/V_{CC}=f_{HO(10V)}-f_{HO(8V)}$	0	50	100	Hz
Hori. OSC. Control Sensitivity	β	ΔI_1 ±100μA Input Variable OSC. Freq. Variable	73	81	89	Hz/μA
Phase Det. Sensitivity	μP	TV Input 2$V_{P\text{-}P}$, $R_{(U)}$ = 31.4KΩ, μ=V19×10	13.5	16.5	19.5	μA/μs
X-Ray Protector Operating Voltage	$V_{27\text{-}21}$		0.81	0.87	0.93	V
X-Ray Protector Input Resistor	R_{27}		16	19	22.5	KΩ

TYPICAL APPLICATION CIRCUIT (12" or 14" B/W TV)



APPLICATION CIRCUIT (12" or 14" B/W TV) (Continued)



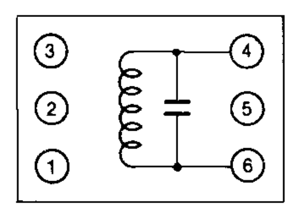
Change the specifications on the following table for your system

Location	System				
	B	D	I	IRELAND	AUSTRALIA
X201	5.5	6.5	6.0	6.0	5.5
CF301	SFE 5.5	SFE 6.5	SFE 6.0	SFE 6.0	SFE 5.5
CF302	CDA 5.5	CDA 6.5	CDA 6.0	CDA 6.0	CDA 5.5

NOTES:
1. All resistance values in ohm K = 1,000 M = 1,000,000.
2. All capacitors not noted in the schematic diagram are in pF the 3rd numeral of the capacitance value indicated 10^3 multiplier (EX: 683→68,000 pF).
3. Voltage readings taken with V.T.V.M. from the point indicated to chassis ground tuner on an unused channel at max other controls at normal line voltage 120 volts.
4. All waveforms measured with a strong signal input contrast set give a normal picture.
5. Voltage reading may vary 10%.
6. With this fundamental circuit diagram, some production changes may be made without revision of the overall diagram.

COIL SPECIFICATIONS

T104 Video Detector Coil



Bottom View

C_O (pF)	f (MHz)	Q_O	Turns
4-6		4-6	4-6
51	45.75	100	5 7/8t

Wire: 0.3mm ø